What do the BTOS indexes measure?

February 13, 2023

The BTOS asks a series of qualitative questions about business conditions in the last two weeks and expectations about future business conditions. These qualitative questions result in response share estimates, the percent of businesses which have selected each possible answer. For most questions, an index is produced to create one estimate per question for easier comparison over time.

An example can provide some insight into the interpretation of the index. Businesses are asked how revenue has changed in the last two weeks and can answer either increased, decreased, or no change. The following formula is used throughout the example.

Index = 100*(1*Increased + ½*NoChange + 0*Decreased)

(1) Assume that 10% of businesses reported an increase in revenue, 60% reported no change, and 30% reported a decrease in revenue. Using the following formula gives an estimate of
Index = 100*(10% + ½*60% + 0*30%) = 40

(2) In the next period 20% of businesses report an increase in revenue, 50% report no change, and 30% report a decrease in revenue. Using the following formula gives an estimate of
Index = 100*(20% + ½*50% + 0*30%) = 45

(3) In the next period 5% of businesses report an increase in revenue, 70% report no change, and 25% report a decrease. Using the formula gives an estimate of 100*(5% + ½*70% + 0*25%) = 40.

(4) In the next period 5% of businesses report an increase in revenue, 85% report no change, and 10% report a decrease. Using the formula gives an estimate of 100*(5% + ½*85% + 0*10%) = 47.

Moving from period (1) to (2), the revenue index improves, capturing the improvement of businesses from the "no change" to "increased" positions. Note that the index improves even though there is no improvement for the 30% of businesses that report decreases in revenue.

Moving from period (2) to (3), the revenue index declines. This reflects the larger weight given to increases (versus no change and decreases) as well as the magnitude of the change.

Moving from period (3) to (4), the revenue index again improves this time reflecting a move away from "decreased" to "no change" while there is no change in the share reporting increases.

These indexes measure the breadth of change for the variable of interest. They capture the extensive margin of change, in that an index moving toward 100 reflects the extent to which the situation for that variable is increasing and movement towards 0 reflects the extent to which the situation for that variable is decreasing while a value near 50 suggests a preponderance of businesses reporting no change such as in period 4. Depending on the question, increasing could have a negative connotation, such as the question on prices.

The examples above are meant to illustrate that the index accounts for and simplifies the underlying dynamics of the variable of interest when the dynamics may be complex and difficult to summarize otherwise.